

**Kern County Water Agency
Improvement District 4
Water Quality Laboratory
Post Office Box 58
Bakersfield, California 93302-0058**

Water Quality Monitoring Plan

Revised January 5, 2009

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Source Water Quality Monitoring

The Henry C. Garnett Water Purification Plant treats four sources of water. Three of the sources are surface water and the fourth is groundwater. The surface water sources include the Friant-Kern Canal, Kern River and State Water Project. The groundwater source is comprised of the combined effluent of various wells located in the Kern Water Bank, 2800 Acres and Allen Road Well Complex. The Cross Valley Canal is utilized to convey the groundwater, Friant-Kern Canal and State Water Project sources to the purification plant. The Kern River source is transported to the plant via the Calloway Canal extension. Photographs of the source water sample sites are contained in Appendix 1.

Monitoring Locations

Source Water	Sample Location Description
Friant Kern Canal	Brimhall Road Bridge (B.F.151.60)
Ground Water	Cross Valley Canal Forebay 6 (combined well effluent)
Kern River	Gordon's Ferry Bridge (Br. No. 56C-0017)
State Water Project	Tupman Bridge (Tupman Road 236.47)

Monitoring Schedule

Constituent	Monitoring Frequency
General Mineral, Physical, and Inorganic nonmetallics	annually
Metals	annually
Volatile Organic Chemicals	quarterly
Non Volatile Synthetic Organic Chemicals	annually*
Asbestos	every nine years
Radionuclides	every six years
Total Organic Carbon	quarterly

*2,4-D, Alachlor, Atrazine, Endothall and Simazine will also be monitored for two consecutive quarters every third year as required by CDPH.

Influent and Treated Water Quality Monitoring

Monitoring Schedule

Constituent	Monitoring Frequency
General Mineral, Physical, and Inorganic nonmetallics	monthly
Metals	quarterly
Volatile Organic Chemicals	quarterly
Asbestos	every nine years
Total Organic Carbon	monthly

Constituents of Concern

The ground water source will be monitored for the following constituents due to the large number of wells, and possible combinations of wells, comprising the combined purification plant influent. The surface water sources will also be monitored for these constituents during pump-in events.

Constituent	Monitoring Frequency
Total Arsenic	weekly
Specific Conductance	weekly
Nitrate	weekly
Bromide	monthly
Total Chromium and Hexavalent Chromium*	monthly
Dibromochloropropane and Ethylene Dibromide	monthly
Radionuclides: Gross Alpha and Uranium**	monthly
Total Organic Carbon	monthly
Volatile Organic Chemicals	monthly
1,2,3-Trichloropropane	quarterly
Non Volatile Synthetic Organic Chemicals	annually

*hexavalent chromium monitored if total chromium exceeds 1ug/L

**uranium monitored if Gross Alpha exceeds 5 pCi/L

Distribution System Water Quality Monitoring

Distribution System Description

The Agency is a wholesaler of drinking water to several different systems in various parts of the greater Bakersfield area. The distribution system consists of three main lines extending Northward, Eastward and Westward from the purification plant. The lines are constructed of mortar-lined steel pipe.

The North main line is 27 inches in diameter and runs under Sequoia Street and McCray Street until terminating at the North of the River Municipal Water District's Terminal Tanks located on Merle Haggard Drive.

The East main line passes under the Kern River and then runs under 40th Street and Jeffrey Street until intercepting Highway 178. The line parallels Highway 178 to the Oswell Regulating Facility located at Oswell Street and Auburn Street. The line subsequently continues under Auburn Street to the Corner Tank located at Auburn Street and Fairfax Road, and then proceeds southward under Highway 178 to the East Niles Community Services District's Country Club Tanks. The profile of the East main line requires a pump station at the Oswell Regulating Facility, to move water upgrade to the Corner Tank. The East main line is 33 inches in diameter from the Henry C. Garnett Water Purification Plant to the Oswell Regulating Facility, 24 inches in diameter from the Oswell Regulating Facility to the Corner Tank and 16 inches in diameter from the Corner Tank to the Country Club Tanks.

Distribution System Description

(continued)

The Northwest Feeder line is 42 inches in diameter and parallels the alignment of the Carrier Canal and then the One-Ditch Canal until intercepting Seven Seas Avenue. The line then continues under Seven Seas Avenue and Meany Avenue until terminating at the intersection of Meany Avenue and Coffee Road.

Photographs of the distribution system water quality monitoring sample stations are contained in Appendix 2. A map illustrating the distribution system sample locations is attached in Appendix 3.

Coliform Bacteria Sample Locations

#	Routine Coliform Bacteria Sample Location Description	Repeat Locations
1	811 Nadine Lane - Henry C. Garnett Water Purification Plant Treated Water Sample Faucet Bakersfield, CA Cross Street Reference: Airport Drive	1, 2, 6
North Main Line		
2	Belle & Sequoia North Pipeline Station 34 + 70, Turnout Number 1 Oildale, CA Cross Street Reference: Belle Street and Sequoia Drive	1, 2, 3
3	1022 Sequoia Drive North Pipeline Station 53 + 50 Oildale, CA Cross Street Reference: Woodrow Avenue	2, 3, 4
4	Francis Street Alley North Pipeline Station 95 + 01, Turnout Number 4 Oildale, CA Cross Street Reference: McRay Street	3, 4, 5
5	North Pipeline Terminal Tank Inlet North Pipeline Station 155 + 22 Oildale, CA Cross Street Reference: 7th Standard Road and Rio Del Norte St.	3, 4, 5

Coliform Bacteria Sample Locations

(continued)

#	Routine Coliform Bacteria Sample Location Description	Repeat Locations
East Main Line		
6	King & Jeffrey East Pipeline Station 154 + 30, Turnout Number 12 Bakersfield, CA Cross Street Reference: King Street and Jeffrey Street	1, 6, 7
7	3100 Columbus Street East Pipeline Wenatchee Pump Station (California Water Service) Bakersfield, CA Cross Street Reference: Wenatchee Street	6, 7, 8
8	Oswell Regulating Facility Tank East Pipeline - 600 feet East of Oswell Street on Auburn Street Bakersfield, CA Cross Street Reference: Oswell Street and Auburn Street	7, 8, 9
9	Oswell Regulating Facility Pump Station East Pipeline Station 273 + 06 Bakersfield, CA Cross Street Reference: Oswell Street and Auburn Street	8, 9, 10
10	Corner Tank East Pipeline Station 317 + 83 Bakersfield, CA Cross Street Reference: Fairfax Road and Auburn Street	8, 9, 10
Northwest Feeder Line		
11	Mohawk Northwest Feeder Station 123 + 00, Turnout Number 3N & 3S Bakersfield, CA Cross Street Reference: Mohawk Street and One-Ditch Canal	1, 11, 12
12	Seven Seas Northwest Feeder Station 148 + 00, Turnout Number 4 Bakersfield, CA Cross Street Reference: Seven Seas Avenue and Fruitvale Avenue	11, 12, 13
13	Meany & Alken Northwest Feeder Station 166 + 28, Turnout Number 5 Bakersfield, CA Cross Street Reference: Meany Avenue and Alken Street	12, 13, 14
14	Meany & Coffee Northwest Feeder Station 225 + 24, Turnout Number 6N & 6S Bakersfield, CA Cross Street Reference: Meany Avenue and Coffee Road	12, 13, 14

Disinfection Byproduct Sample Locations

#	Disinfection Byproduct Sample Location Description
North Main Line	
2	Belle & Sequoia North Pipeline Station 34 + 70, Turnout Number 1 Oildale, CA Cross Street Reference: Belle Street and Sequoia Drive
3	1022 Sequoia Drive North Pipeline Station 53 + 50 Oildale, CA Cross Street Reference: Woodrow Avenue
4	Francis Street Alley North Pipeline Station 95 + 01, Turnout Number 4 Oildale, CA Cross Street Reference: McRay Street
5	North Pipeline Terminal Tank Inlet North Pipeline Station 155 + 22 Oildale, CA Cross Street Reference: 7th Standard Road and Rio Del Norte Street
East Main Line	
6	King & Jeffrey East Pipeline Station 154 + 30, Turnout Number 12 Bakersfield, CA Cross Street Reference: King Street and Jeffrey Street
7	3100 Columbus Street East Pipeline Wenatchee Pump Station (California Water Service) Bakersfield, CA Cross Street Reference: Wenatchee Street
8	Oswell Regulating Facility Pump Station East Pipeline Station 273 + 06 Bakersfield, CA Cross Street Reference: Oswell Street and Auburn Street
9	Oswell Regulating Facility Tank East Pipeline - 600 feet East of Oswell Street on Auburn Street Bakersfield, CA Cross Street Reference: Oswell Street and Auburn Street

Disinfection Byproduct Sample Locations

(continued)

#	Disinfection Byproduct Sample Location Description
Northwest Feeder Line	
11	Mohawk Northwest Feeder Station 123 + 00, Turnout Number 3N & 3S Bakersfield, CA Cross Street Reference: Mohawk Street and One-Ditch Canal
12	Seven Seas Northwest Feeder Station 148 + 00, Turnout Number 4 Bakersfield, CA Cross Street Reference: Seven Seas Avenue and Fruitvale Avenue
13	Meany & Alken Northwest Feeder Station 166 + 28, Turnout Number 5 Bakersfield, CA Cross Street Reference: Meany Avenue and Alken Street
14	Meany & Coffee Northwest Feeder Station 225 + 24, Turnout Number 6N & 6S Bakersfield, CA Cross Street Reference: Meany Avenue and Coffee Road

Monitoring Schedule

Constituent	Monitoring Frequency
Treated Water Pump Station Bacteria	daily
Distribution System Bacteria	weekly
Total Organic Carbon (TOC)	monthly
Total Trihalomethanes (TTHM)	monthly
Haloacetic Acid 5 (HAA5)	quarterly

Appendix 1

Source Water Sample Locations



Friant Kern Canal – Brimhall Road Bridge



Ground Water (combined well effluent) – Cross Valley Canal Forebay 6

Appendix 1

Source Water Sample Locations



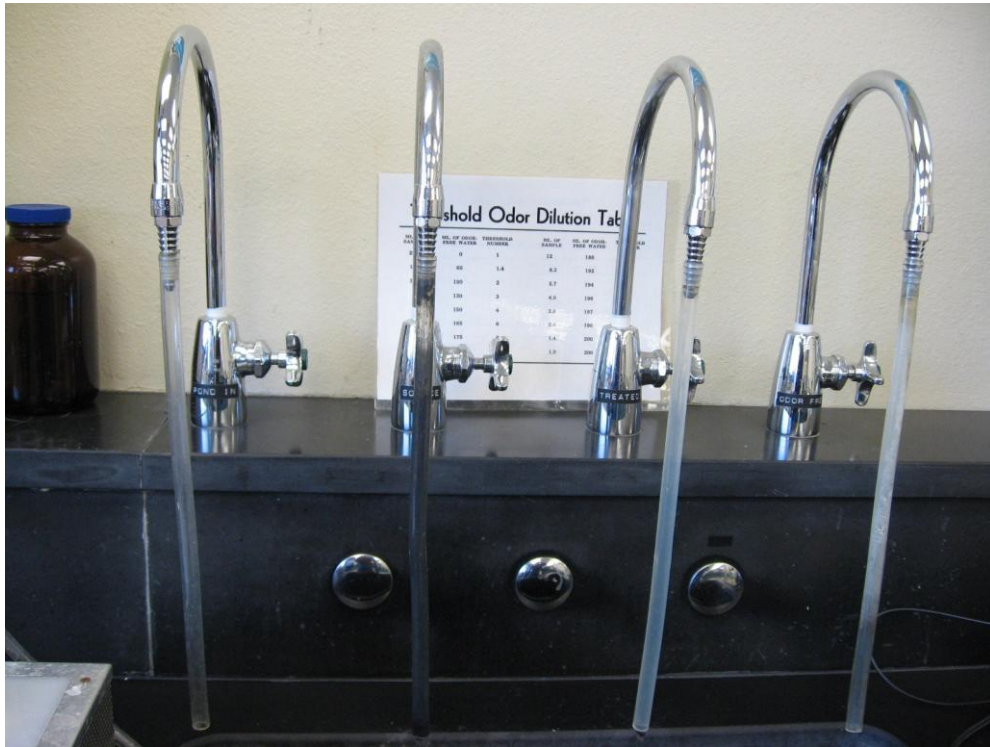
Kern River - Gordon's Ferry Bridge



State Water Project - Tupman Bridge

Appendix 2

Distribution System Sample Stations



Sample Station 1: Treated Water Sample Faucet



Sample Station 2: Belle and Sequoia

Appendix 2

Distribution System Sample Stations



Sample Station 3: 1022 Sequoia Street



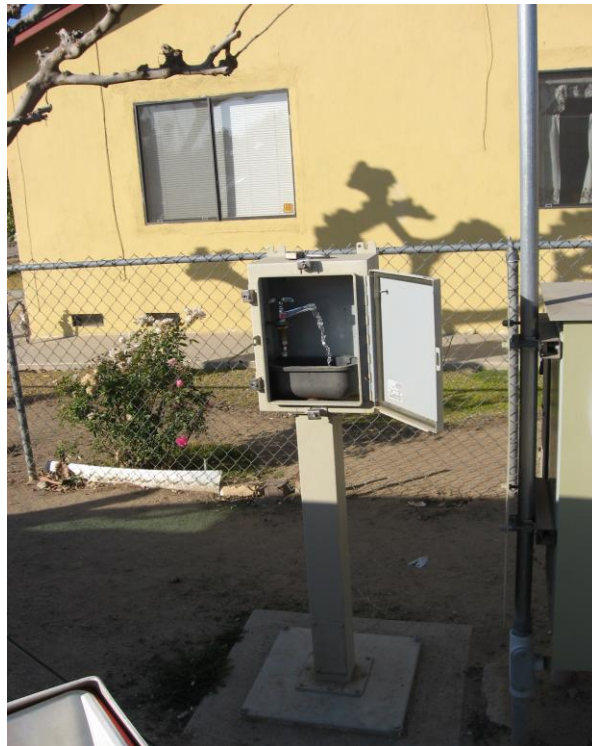
Sample Station 4: Francis Street Alley

Appendix 2

Distribution System Sample Stations



Sample Station 5: North Pipeline Terminal Tank Inlet



Sample Station 6: King and Jeffrey

Appendix 2

Distribution System Sample Stations



Sample Station 7: Wenatchee Pump Station



Sample Station 8: Oswell Regulating Facility Tank

Appendix 2

Distribution System Sample Stations



Sample Station 9: Oswell Regulating Facility Pump Station



Sample Station 10: Corner Tank

Appendix 2

Distribution System Sample Stations



Sample Station 11: Mohawk



Sample Station 12: Seven Seas

Appendix 2

Distribution System Sample Stations



Sample Station 13: Mohawk and Alken



Sample Station 14: Mohawk and Coffee

Appendix 3

Distribution System Sample Stations Map